CLAIMS

1. An optical attenuator characterized in that the refractive index at the center part of a core of a single mode optical fiber is raised as compared to that of the peripheral part of the core.

2. The optical attenuator as described in Claim 1, characterized in that the wavelength dependency of the mode field is increased by adopting one selected from a group containing a graded-index type, parabolic shape, triangular wave shape, square wave shape and trapezoidal wave shape as the distribution of refractive index of said core.

3. An optical attenuator containing dopant which attenuates transmitted light more when its wavelength is longer in a signal mode optical fiber, characterized in that the dopant area is limited at the center part of the core and that the refractive index at the center part of said core is raised as compared to that of the peripheral part of said core.

4. The optical attenuator as described in Claim 3, characterized in that one selected from a group containing a graded-index type, parabolic shape, triangular wave shape, square wave shape and trapezoidal wave shape is adopted as the distribution of refractive index of said dopant area.

5. An optical attenuator containing dopant which attenuates transmitted light more when its wavelength is longer in a signal mode optical fiber, characterized in that the dopant

area is limited to the peripheral part of the core and that the refractive index at the center part of said core containing no dopant is raised as compared to that of the peripheral part of said core.

6. The optical attenuator as described in Claim 5, characterized in that one selected from a group containing a graded-index type, parabolic shape, triangular wave shape, square wave shape and trapezoidal wave shape is adopted as the refractive index profile at the center part of said core where no dopant is contained.

7. An optical attenuator containing dopant which attenuates transmitted light more when its wavelength is shorter in a signal mode optical fiber, characterized in that the dopant area is limited to the center part of the core and that the refractive index at the center part of said core is raised as compared to that of the peripheral part of said core.

8. The optical attenuator as described in Claim 7, characterized in that one selected from a group containing a graded-index type, parabolic shape, triangular wave shape, square wave shape and trapezoidal wave shape is adopted as the distribution of refractive index of said dopant area.

9. An optical attenuator containing dopant which attenuates transmitted light more when its wavelength is longer into a signal mode optical fiber, characterized in that the dopant area is limited to the peripheral part of the core and that the

refractive index at the center part of said core is raised as compared to that of the peripheral part of said core.

10. The optical attenuator as described in Claim 9, characterized in that one selected from a group containing a graded-index type, parabolic shape, triangular wave shape, square wave shape and trapezoidal wave shape is adopted as the refractive index profile at said dopant area.